Claims

- 1. A method for preparing a population of cells for enhancing the growth or maintenance of hematopoietic progenitor cells, the method comprising:
- contacting a cell expressing a PTH/PTHrP receptor with an agent that activates the PTH/PTHrP receptor in an amount effective to support the growth or maintenance of hematopoietic progenitor cells.
- 2. The method of claim 1, wherein the cell expressing a PTH/PTHrP receptor is present in the immediate vicinity of a hematopoietic progenitor cell.
 - 3. The method of claim 1, wherein the cell expressing a PTH/PTHrP receptor is chosen from an osteoblast, a lymphoreticular stromal cell, and a mixture of osteoblasts and lymphoreticular stromal cells.
 - 4. The method of claim 1, wherein said contacting the cell expressing a PTH/PTHrP receptor with an agent that activates the PTH/PTHrP receptor occurs *in vitro*.
- 5. The method of claim 1, wherein said contacting the cell expressing a PTH/PTHrP receptor with an agent that activates the PTH/PTHrP receptor occurs *in vivo*.
 - 6. The method of claim 1, wherein the agent that activates the PTH/PTHrP receptor is PTH, a PTH analogue, or a PTH/PTHrP receptor agonist.
- 7. The method of claim 1, wherein the growth and maintenance of hematopoietic progenitor cells occurs *in vitro*.
 - 8. The method of claim 1, wherein the growth and maintenance of hematopoietic progenitor cells occurs *in vivo*.
 - 9. A method for enhancing the growth and maintenance of hematopoietic progenitor cells, the method comprising:

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contacting a hematopoietic progenitor cell with a cell expressing a PTH/PTHrP receptor and contacting the cell expressing a PTH/PTHrP receptor with an agent that activates the PTH/PTHrP receptor to induce self-renewal of the hematopoietic progenitor cell.

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- 10. The method of claim 9, wherein the contacting occurs in vitro.
- 11. The method of claim 9, wherein the contacting occurs ex vivo.
- 10 12. A method for enhancing the growth or maintenance of hematopoietic progenitor cells in a subject, the method comprising:

administering to a subject in need of hematopoietic cell growth or maintenance an agent that activates the PTH/PTHrP receptor in cells of the subject expressing the PTH/PTHrP receptor, in an amount effective to support the growth or maintenance of hematopoietic progenitor cells.

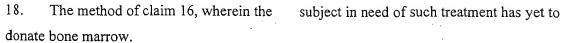
13. The method of claim 12, wherein the cell expressing a PTH/PTHrP receptor is chosen from an osteoblast, a lymphoreticular stromal cell, and a mixture of osteoblasts and lymphoreticular stromal cells.

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- 14. The method of claim 12, wherein the cell expressing a PTH/PTHrP receptor is a hematopoietic progenitor cell.
- 15. The method of claim 12, wherein the agent that activates the PTH/PTHrP receptor is 25 PTH, a PTH analogue, or a PTH/PTHrP receptor agonist.
 - 16. The method of claim 12, wherein the subject in need of such treatment is a bone marrow donor.
- The method of claim 16, wherein the subject in need of such treatment has donated bone marrow.

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19. The method of claim 12, wherein the subject in need of such treatment is a bone marrow transplant recipient.

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- 20. The method of claim 12, wherein the subject in need of such treatment is a subject having hematopoietic progenitor cells under environmental stress.
- 10 21 The method of claim 12 wherein the subject in need of such treatment is a subject having anemia.
 - 22. A method for enhancing mobilization of hematopoietic progenitor cells, the method comprising:
- administering to a subject in need of such treatment an agent that activates a PTH/PTHrP receptor in an amount sufficient to enhance mobilization of hematopoietic progenitor cells in the subject.
- A method for preparing hematopoietic progenitor cells comprising:

 administering to a subject an agent that activates a PTH/PTHrP receptor in an amount effective to promote in the subject hematopoietic cell growth, maintenance or mobilization, and then harvesting from the subject hematopoietic progenitor cells.
 - 24. The method of claim 23 wherein the hematopoietic cells are harvested from blood.
 - 25. An isolated population of stromal cells treated with PTH.

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A method for stimulating immune cell expansion comprising:
 contacting an immune cell with a cell expressing a PTH/PTHrP receptor and
 contacting the cell expressing a PTH/PTHrP receptor with an agent that activates the PTH/PTHrP receptor to induce immune cell expansion.

- 27. The method of claim 26, wherein the contacting occurs in vitro.
- 28. The method of claim 26, wherein the contacting occurs ex vivo.
- 5 29. A method for enhancing immune cell expansion in a subject, the method comprising: administering to a subject in need of immune cell expansion an agent that activates a PTH/PTHrP receptor in cells of the subject expressing the PTH/PTHrP receptor, in an amount effective to support immune cell expansion.
- 10 30. The method of claim 29, wherein the cell expressing a PTH/PTHrP receptor is a progenitor cell.

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- 31. The method of claim 29, wherein the agent that activates the PTH/PTHrP receptor is PTH, a PTH analogue, or a PTH/PTHrP receptor agonist.
- 32. The method of claim 29, wherein the subject in need of treatment is in need of B-cell expansion.
- 33. The method of claim 29, wherein the subject in need of treatment is in need of T-cell expansion.
 - 34. The method of claim 29, wherein the subject in need of treatment is in need of platelet expansion.
- 25 35. The method of claim 29, wherein the subject in need of treatment is in need of basophil cell expansion.
 - 36. The method of claim 29, wherein the subject in need of treatment is in need of neutrophil cell expansion.
 - 37. The method of claim 29, wherein the subject in need of treatment is in need of macrophage cell expansion.

38. A method for enhancing hematopoietic cell growth or maintenance in vitro comprising:

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contacting hematopoietic cells with a population of cells enriched for osteoblasts.

- 39. The method of claim 38 further comprising contacting osteoblasts with PTH, a PTH analogue, or a PTH/PTHrP receptor agonist.
- 40. The method of claim 38 further comprising contacting a hematopoietic cell with a Notch-1 receptor agonist.